

SOCIETY MEETINGS

994th Regular Meeting—May 5, 1994

The 994th Regular Meeting of the Entomological Society of Washington was called to order by President Paul J. Spangler at the Log Lodge, Beltsville, Maryland, at 8:10 pm on May 5, 1994. Thirteen members and six visitors were present. Minutes of the April meeting were read by the Recording Secretary M. Alma Solis and approved as read.

President Spangler called for reports from officers. Ralph Eckerlin, Membership Chairman, reported four new members: R. Wills Flowers, Agricultural Research Programs, Florida A. & M. University, Tallahassee, Florida; Jon A. Lewis, Systematic Entomology Laboratory, Washington, D.C.; Charles D. Michener, Snow Entomological Museum, University of Kansas, Lawrence, Kansas; Matthew D. Moran, Department of Biology, University of Delaware, Newark, Delaware.

President Spangler called for announcements, notes, or exhibits. John H. Fales reported finding for the first time in Calvert County, Maryland, the following butterflies: *Erynnis brizo* (May 15, 25 at Lusby), *Hesperia metae* (June 16 at Plum Point), and *Satyrium liparops strigosum* (June 22 at St. Leonard). Also, in 1993 the Monarch butterfly recovered from the poor populations in 1992. Monarch butterflies migrating northward in 1994 were seen on April 18, 21, 26. He also distributed copies of a list of "Butterflies known from the Western Shore of Southern Maryland northward to the Largo area in Prince Georges County and the South River in Anne Arundel County."

Nathan Schiff, Program Chairman, introduced the speaker for the evening, Dr. Suzanne Batra, Bee Research Laboratory, ARS, USDA, whose talk was entitled "A Buzz About Fuzz." Many bees are utilized as pollinators, for example, bumblebees, horn-

facéd bees, *Anthophora* sp., *Osmia* sp., and *Colletes* sp. Honeybees remain the most important pollinators of crops. They are fast, show a high degree of fidelity, fly long range, and carry much pollen, mainly through the use of their hairy bodies. There are many different kinds of hairs: branched or plumose, stiff, sturdy, straight setae, twisted hairs (spirals), barbed, flat-tipped, rough and straight, and flattened, leaflike or spatulate. Bees use these hairs for a wide variety of important functions. They collect pollen, as a lump of nectar-moistened pollen on the corbicula, held in place by setae, a mass of loose pollen on the hind legs, held in place by plumose hair, or loose pollen held beneath the abdomen by spiralled, flat-tipped, or rough hairs. In courtship and mating the males of Anthophoridae and Megachilidae may have modified legs with elaborate brushes of specialized hairs, which they brush over the female's face, antennae, and eyes; they hold onto her with stiff setae inside their other legs. They collect and distribute pheromones with velvety patches of flattened hair, usually on the feet or legs. Other specialized setae on various parts of the body collect nectar or floral oils, specialized flattened hairs lay down waterproof Dufour's gland secretions for nest construction, and one genus uses "foot-pats" for communication.

Our visitors were introduced and the meeting was adjourned at 10:45 pm. After the meeting refreshments were provided by John Neal and an anonymous individual.

M. Alma Solis, *Recording Secretary*

995th Regular Meeting—June 2, 1994

The 995th Regular Meeting was held at a banquet with the Maryland Entomological Society at the Associates Court at the National Museum of Natural History, 10th &

Constitution, Washington, D.C. Jeffrey R. Aldrich was Master of Ceremonies. The speaker for the evening was Professor Lincoln P. Brower whose presentation was entitled "The Magnificent Migration of the Monarch Butterfly." Over 150 people attended and the banquet was adjourned at 9:45 pm.

M. Alma Solis, *Recording Secretary*

996th Regular Meeting—October 6, 1994

The 996th Regular Meeting of the Entomological Society of Washington was called to order by President Paul J. Spangler in the Waldo Schmitt Room, National Museum of Natural History at 8:10 pm on October 6, 1994. Thirteen members and three visitors were present. Minutes of the May meeting were read by Don Anderson and approved as read.

President Spangler called for reports from officers. Membership Chairman, Ralph P. Eckerlin, read the names of the following applicants for membership: Alessandra Rung de Paula Baptista, Departamento de Zoologia, Laboratorio de Entomologia, Universidad Federal do Rio de Janeiro, Brazil; George J. Balogh, Portage, Michigan; Nell Benton, Alexandria, Virginia; J. H. Frank, Entomology and Nematology Department, University of Florida, Gainesville, Florida; Phillip A. Furr, Albemarle, North Carolina; Michael J. Firko, Columbia, Maryland; David G. Furth, Department of Entomology, Smithsonian Institution, Washington, D.C.; Lynn S. Kimsey, Department of Entomology, University of California, Davis, California; Jeff B. Knight, Nevada Division of Agriculture, Reno, Nevada. Two new members, David Furth and Michael Firko, were present.

President Spangler called for notes or exhibits. Nathan Schiff brought a hepialid caterpillar, *Korscheltellus gracilis* (Grote), he found underneath moss mats from Spruce Knob, West Virginia, and a sawfly, *Atmocera decepta* Rohwer, he found on *Hi-*

biscus moscheutos and asked if anyone knew of any more specimens for study. John Neal brought up the 1000th Regular Meeting, Dave Furth suggested an archival meeting, and Russell Stewart suggested a buffet. Walter Sheppard and John Heraty volunteered to be on an ad hoc committee for the 1000th Regular Meeting. President Spangler asked for volunteers for refreshments: J. Neal (November), R. Eckerlin (December), M. Firko (May).

Nathan Schiff, Program Chairman, introduced the speaker for the evening, Dr. Walter S. Sheppard, whose talk was entitled "Genetic Diversity in the Honey Bee." Dr. Sheppard described the biogeography and biology of *Apis* species around the world with beautiful photos of honey bees. He illustrated unusual nesting habits worldwide, such as giant honey bees out in the open in trees and water towers and dwarf honey bee honey combs for sale in a Bangkok market. Although the original distribution of *Apis mellifera* L. was from Scandinavia to Africa with 25 subspecies, the species has been introduced worldwide and in some areas displacing *Apis cerana*. This species, also known as the eastern cavity nesting bee, was the most important bee for honey production in India and Asia until *A. mellifera* was introduced. *A. mellifera lamarckii* in modern Egypt are kept in mud tubes just as in ancient Egypt. The tubes were kept on barges and the honey sold on the Nile. Bee parts found in a 3000 year old piece of wax found alongside mummified Egyptians in the Egyptian Museum Torino were collected for DNA sequencing to compare with the modern *lamarckii* group. Dr. Sheppard also discussed the relationships between the species and subspecies using DNA sequencing results.

Our visitors were introduced and the meeting was adjourned by President Spangler at 9:30 pm. After the meeting refreshments were provided by contributors who wish to remain anonymous.

M. Alma Solis, *Recording Secretary*

997th Regular Meeting—November 3, 1994

The 997th meeting of the Entomological Society of Washington was called to order by Dr. Paul J. Spangler, President, in the Waldo Schmitt Room of the Natural History Building at 8:10 pm on November 3, 1994. Twelve members and six guests were present. Minutes of the October meeting were read by Ms. Hollis Williams and approved as read.

President Spangler called for reports from officers. Dr. Ralph P. Eckerlin, Membership Chairman, reported no new members. The Nominating Committee consisting of Dr. E. Eric Grissell (Chairman), Dr. Donald M. Anderson, and Dr. Donald R. Davis provided a slate of officers for the following year: Dr. Ralph P. Eckerlin, President-Elect; Ms. Darlene D. Judd, Recording Secretary; Ms. Hollis B. Williams, Corresponding Secretary; Mr. James Pakaluk, Custodian; Dr. Norman E. Woodley, Treasurer; Dr. Nathan M. Schiff, Program Chairman; Dr. M. Alma Solis, Membership Chairman; Mr. Thomas J. Henry, Editor; Dr. David Smith, Associate Editor. The slate was read by Dr. Anderson. Additional nominations will be accepted and the entire slate voted on at the Annual Meeting on December 1. Dr. John Heraty, who is a member of the Ad Hoc Committee for the 1000th Regular Meeting with Dr. Steve Sheppard, made two suggestions. The committee suggested either a restaurant or a wine and cheese reception in the museum or elsewhere. Funds for a speaker are available and the society needs suggestions.

President Spangler called for notes and specimens. Dr. Raymond J. Gagné showed some slides of mass larval migration of black fungus gnat larvae (Diptera: Sciaridae). This phenomenon may be more common than indicated by the few references in the scientific literature. The migrations are ephemeral and seeing one depends mainly on luck. During his 30 years' experience in Washington, Dr. Gagné has had several calls about long snakelike streams of worms

crawling through a backyard, but always long after the fact, and the observers had taken no specimens or photographs. On September 29, 1994, in Silver Spring, Maryland, Ms. Louise Rickard, an amateur naturalist, observed two rings of migrating sciarids on the front walk of her residence, watched their progress, took photographs, and saved specimens in alcohol. The larger ring was about 60 cm in circumference, about 1.2 cm wide, and 0.6 cm high. When she disturbed a ring, the larvae reformed it, but near nightfall the larvae in one ring that was left undisturbed finally crawled off into the adjacent lawn and disappeared. Steffan (1966, Univ. Calif. Pubs. Entomol. 44: 1-77) reviewed sciarid mass migration reports. Two reports are particularly good, one by Beebe (1949, High Jungle: 261-269) and one by Becker (1914, Psyche 21: 94-95). Both reported that movement of the mass was jerky and effected mainly by the larvae at the top crawling forward over those on the bottom. Beebe noticed that his larvae were of several sizes, evidently belonging to several instars, indicating that their dispersal is related to the larvae having depleted a food source. The present case is especially noteworthy because Ms. Rickard noticed and saved a larger, differently shaped larva crawling along with the sciarids. It was *Muscina stabulans* (Fallèn) (Diptera: Muscidae), a carnivorous maggot that preys heavily on many kinds of gregarious larvae in such media as dung and mushrooms. This is the first record of another species associated with mass migration of sciarids.

Dr. Schiff, Program Chairman, introduced the speaker for the evening, Dr. Bruce McPherson of Pennsylvania State University, whose talk was entitled "Ode to St. Bush or Why Are There So Many Kinds of Tephritid Flies." Dr. McPherson studies the evolution of fruit fly diversity and is interested in how it reflects insect diversity in general. While most fruit flies are associated with fruits, as their name indicates, species in this family exhibit a variety of habits: several hundred species are leaf miners, for

example, on parsnip; a whole subfamily is associated with flower heads and seeds of Compositae; *Blepharoneura* is associated with Cucurbitaceae where partitioning of resources has been shown. Specifically Dr. McPherson is studying the relationship between host plant use and the number of fruit fly species. A single species studied extensively, such as the Mediterranean fruit fly, has a diversity of hosts such as coffee, hot peppers, and tropical almond, but shows no evidence for substructuring of host plant choice. But where *Anastrepha* is introduced, its distribution is tied in space and host plant use to the presence of native fruit fly species. In northern Brazil it infests only one plant species, but in southern Brazil where other *Anastrepha* species occur it is not found on the same host plant as in northern Brazil. Although this is ecologically interesting, there is no evidence that host plants are a driving factor in the population differentiation between the fruit fly species. In 1865, Benjamin Walsh speculated that in *Rhagoletis pomonella* (Walsh), there was a linkage between use of hosts and population divergence. One hundred years later, in 1965, Guy Bush published his revision of the North American genus *Rhagoletis*. He compared morphological evolution with host plant use and identified a correlation between morphological species groups and host plant use, suggesting a host plant shift within the natural distribution of a species, the occurrence of reproductive isolation, and sympatric evolution. Bush listed characteristics of organisms having undergone sympatric evolution: close association with the host plant; mating on the host plant; larva spending its entire life cycle within one fruit and tied into the production of fruit. Dr. McPherson studied *R. pomonella* on two major hosts with overlapping distributions, hawthorns and apples. He collected fruits, reared the larvae to adults, conducted genetic analyses with allozyme electrophoresis. He found that *R. pomonella* populations feeding on the different host plants were genetically different.

Our visitors were introduced and the meeting was adjourned at 9:35 pm. After the meeting refreshments were provided by Dr. John W. Neal, Jr., President-Elect.

M. Alma Solis, *Recording Secretary*

998th Annual Meeting—December 1, 1994

The 998th Annual Meeting of the Entomological Society of Washington was called to order by President Paul J. Spangler in the Naturalists' Center of the Natural History Building at 8:00 pm on December 1, 1994. Fifteen members and four guests were present. Minutes of the November meeting were read by Recording Secretary Alma Solis and approved as read.

President Spangler called for officers' reports. Membership Chairman, Ralph D. Eckerlin, reported no new members. He reported a total of 19 new members for 1994 and encouraged more new members. The report by the Editor, Thomas Henry, was read by M. Alma Solis. Seventy-eight articles were published for a total of 779 pages. T. Henry also thanked Gary L. Miller, Book Review Editor, A. G. Wheeler, Jr., Special Publications Editor, and F. C. Thompson for their service to the society. He thanked the reviewers of the journal articles and Marie Blair for assistance. The report by the Custodian, Jim Pakaluk, was read by Paul Spangler. He thanked Sarah Donahue and Tami Carlow who helped with mailings and record keeping. The report by the Corresponding Secretary, Hollis Williams, was read by Paul Spangler. She reported writing fourteen letters to new members, speakers, and contributors on behalf of the society. M. Alma Solis read the financial report by Treasurer Norman Woodley that showed the society to be solvent. The report was examined and approved by the Audit Committee, Michael E. Schauff, Chairman, Warren E. Steiner, Jr., and Natalia J. Vandenberg, Members. Outgoing President Spangler thanked Don Anderson for his help, John Neal for organizing the banquet, Tom Henry as Editor of the journal, the officers,

and the members of the Auditing, Nominating, and Ad Hoc 1000th Meeting Committees.

The slate of officers for 1995 by the Nominating Committee was presented by Dave Smith:

- President—John W. Neal, Jr.
- President-Elect—Ralph Eckerlin
- Recording Secretary—Darlene Judd
- Corresponding Secretary—Hollis B. Williams
- Treasurer—Norman E. Woodley
- Program Chairman—Nathan M. Schiff
- Membership Chairman—M. Alma Solis
- Custodian—James Pakaluk
- Editor—Thomas J. Henry

The motion to accept the slate was made by Ted Spilman, seconded by John Heraty, and was voted upon and unanimously accepted by the members present.

President Spangler called for notes and specimens. Nathan Schiff reported that the meetings will be held at the Naturalists' Center until April, possibly May. Ted Spilman brought a book entitled *The Beetles of Northeastern North America*, Volume I: Introduction; Suborders Archostemata and Adephaga, by N. M. Downie and Ross H. Arnett, Jr. (1994, The Sandhill Crane Press, Gainesville, Florida, \$160.00 for 3 volumes). Nathan Schiff brought specimens of male and female acrocerid flies, or small-headed flies. The female lays thousands of eggs, and the larvae crawl up the legs of spiders and live as ectoparasites on the book lungs. Ralph Eckerlin brought in an article in the Metro section of the Washington Post describing the removal of a cockroach from the ear of a student from George Washington University. William Bickley brought to the attention of the society that Manya Stoezel, a member of this society, has been elected President-Elect of the Entomological Society of America. Curtis Sabrosky reported the death in Brazil of José Carvalho, a specialist in Miridae (Heteroptera).

Program Chairman, Nathan Schiff, intro-

duced the speaker for the evening, Dr. L. P. S. (Bas) Kuenen, USDA, ARS Bee Research Laboratory, whose talk was entitled "Flights of Fancy? Factors Mediating Male Moths' Flight Toward a Pheromone Source." Dr. Kuenen described his work on factors affecting the movement of male moths toward a pheromone source. A video produced at Cardé's laboratory showed the structure and function of a wind tunnel, a sustained flight tunnel that allows the controlled study of flight by insects. The male moths regulate their velocity by visually looking at the moving floor pattern, and can be slowed down if necessary by regulating the speed of the floor pattern. The male moths fly upwind toward a pheromone source. If the pheromone plume is ended abruptly in the wind tunnel, the male continues flying toward the pheromone source, but exhibits casting behavior. As the male moth flies upwind it doesn't move up or down and just moves in the same plane with a characteristic side to side movement. This work was done with the gypsy moth in the wind tunnel, but studies in a forest environment were also done. In nature casting behavior is also apparent when the male leaves the pheromone plume, but it is more complex due to the lateral shifts in the wind. He has also investigated pupal size as a factor affecting flight and found that smaller males fly faster or appear to fly faster. He has also tested the hypothesis that velocity equals distance over time. In locusts, studies had shown that they fly faster at higher altitudes. In moths, he found that they fly slower at higher altitudes which is believed to be because of other visual cues.

Our visitors were introduced, new members present were introduced, and President Paul Spangler transferred the gavel to President-Elect John W. Neal, Jr. John Neal adjourned the meeting at 9:25 pm and refreshments were provided by Ralph Eckerlin.

M. Alma Solis, *Recording Secretary*